Students with Sickle Cell Anemia Participating in Recess

Matthew D. Lucas, Ed.D., C.A.P.E.
Katharine M. Devlin, Student

Department of Health, Athletic Training, Recreation, and Kinesiology
Longwood University

Abstract

The participation of a student with Sickle Cell Anemia in recess can often be both challenging and rewarding for the student and teacher. This paper will address common characteristics of students with Sickle Cell Anemia and present basic solutions to improve the experience of these students in the recess setting. Initially the definition, prevalence, and symptoms of Sickle Cell Anemia will be presented. The paper will then address recommendations for children with Sickle Cell Anemia in recess.

Definition and Prevalence of Sickle Cell Anemia

The Individuals with Disabilities Education Act (IDEA) states that children who are determined to have disabilities receive special education if the condition negatively affects the educational performance of the child. One such category, which includes a variety of specific disabilities, is *other health impairments*. As the reader will note, the following definition of other health impairments in IDEA includes mention of sickle cell anemia.

Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that—

(i) Is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, *sickle cell anemia*, and Tourette syndrome; and

(ii) Adversely affects a child's educational performance. [§300.8(c)(9)] (CFR §300.7 (a) 9) (IDEA, 2004).

Anemia generally refers to a condition where an individual's blood has less than a normal number of red blood cells (National Dissemination Center for Children with Disabilities, 2010). Anemia also includes instances where the red blood cells themselves don't have enough hemoglobin – the carrier of oxygen. More specifically, sickle cell anemia describes an abnormality in the hemoglobin and the shape of the red blood cells. "Sickle" refers to the cells becoming sickle-shaped, like the letter C. As a result of this shape, it is difficult for the red blood cells to pass through small blood vessels. This difficulty leads

to pain and often damages organs (National Dissemination Center for Children with Disabilities, 2010).

Worldwide, sickle cell anemia affects millions of people. In the United States, the disease affects about 70,000 people. Sickle cell anemia is particularly common among people whose ancestors come from sub-Saharan Africa; Spanish-speaking regions (South America, Cuba, Central America); Saudi Arabia; India; and Mediterranean countries such as Turkey, Greece, and Italy. In the United States, the disease occurs in about 1 in every 500 African-American births and 1 in every 1000 to 1400 Hispanic-American births. About 1 in 12 African Americans carry the trait for the disease (Oak Ridge National Library, 2005).

Symptoms of Sickle Cell Anemia

It is important to note that diagnosing Sickle Cell Anemia is relatively simple. The procedure involves a simple blood test to determine what type of hemoglobin a person has. The test also determines if the shape of the red blood cells is sickle-shaped. Another important fact to note is that there is no cure for sickle cell anemia, but there are treatments for the common symptoms and complications. If the disease is not treated, damage to a variety of organs in the body, including the spleen, kidneys, and liver, can arise (National Dissemination Center for Children with Disabilities, 2010).

Sickle Cell Anemia can affect the individual in either a minor or severe manner. The following characteristics – either all or some - may be present:

- Hand-foot syndrome – (as a result of the blocking of blood vessels in hands or feet, pain and swelling along with fever occur)
- Fatigue, paleness, and shortness of breath
- Pain that occurs unpredictably in any body organ or joint
- A variety of eye problems including deterioration of the retina possibly leading to blindness
- Yellowing of skin and eyes
- Delayed growth and puberty in children and often a slight build in adults
- Increased vulnerability to infections
- Increase risk of stroke, primarily in children
- Acute chest syndrome (Gene Gateway: Exploring Genes and Genetic Disorders, 2005).

Benefits of the Recess Setting for Children with Sickle Cell Anemia

Simply stated, the benefits of the recess setting are high for all children. Included in these benefits are both physical and social benefits. In terms of physical benefits, recess has been shown to lead to:

- Improvement of general fitness and endurance levels for children (KidsHealth.org, 2009).

- Improvement of out-of-school activity levels – children usually are involved in physical activities on days in which they participate in in-school physical activities (Dale, Corbin, & Dale, 2000).

It is important to note that the physical benefits from recess for children with sickle cell anemia are particularly important. The most important of these benefits is to improve endurance. This should be the goal of recess for children with sickle cell anemia since fatigue and shortness of breath, as noted, are often common for these children.

Recess Recommendations for Children with Sickle Cell Anemia

To achieve the aforementioned goal of improving endurance through recess, the following recommendations should be followed for a student with sickle cell anemia during recess:

- Consume water before, during, and after exercise to avoid dehydration
- Keep the exercise intensity at a moderate level. High-intensity exercise can cause pain as a result of dehydration - increase intensity with caution (Livestrong.com, 2010).

The first of these recommendations – to consume water - is fairly easy to follow. The second recommendation, to keep exercise intensity at a moderate level may be a bit more difficult. The benefit of keeping the exercise intensity level at a moderate level, as opposed to a high-intensity level, is that because of a reduced level of pain, or better yet, no pain at all, children will continue to exercise. In an attempt to better have children follow these recommendations, listed below are some good active recess choices for the child with Sickle Cell Anemia.

- Shooting basketball shots – avoid competitive full-court games where the child is forced to move at a high intensity level and play offense and defense
- Passing a soccer ball with a partner – avoid competitive games where the child is forced to move at a high intensity level and play offense and defense
- Turning the rope for others as they group jump rope – avoid having the individual jump rope – this is often at a high intensity level
- Play horseshoe-like games
- Throwing and Catching a ball or Frisbee with a partner or in a group circle
- Playing a golf-like game
- Playing a bowling-like game

Conclusion

The participation of a student with a health impairment in recess can often be both challenging and rewarding for both the student and teacher. The rewards can manifest themselves in the ability of the teacher to guarantee the safety of all students in an instructionally sound environment. This paper has hopefully addressed some basic concerns and solutions to improve the recess setting of students with sickle cell anemia.

References

Dale, D., Corbin, C. B., & Dale, K. S. (2000). Restricting opportunities to be active during school time: Do children compensate by increasing physical activity levels after school? *Research Quarterly for Exercise and Sport, 71*(3), 240-248.

Gene Gateway: Exploring Genes and Genetic Disorders. (2005). *Genetic disease profile: Sickle cell anemia*. Retrieved August 4, 2010 from http://www.ornl.gov/sci/techresources/Human_Genome/posters/chromosome/sca.shtml

Individuals with Disabilities Education Act (IDEA), Pub. L. No. 108-466. (2004).

KidsHealth.org (2009). *Kids and exercise: The many benefits of exercise*. Retrieved August 4, 2010 from http://kidshealth.org/parent/fitness/general/exercise.html

Livestrong.com. (2010). *Exercise and sickle cell anemia*. Retrieved August 3, 2010 from http://www.livestrong.com/article/157963-exercise-and-sickle-cell-anemia/

National Dissemination Center for Children with Disabilities. (2010). Sickle Cell Amenia. Retrieved August 3, 2010 from http://www.nichcy.org/Disabilities/Specific/Pages/OHI-sicklecell.aspx

Oak Ridge National Library. (2005). Genetic disease profile: Sickle cell anemia. Retrieved August 1, 2010 from http://www.ornl.gov/sci/techresources/Human_Genome/posters/chromosome/sca.shtml